

Remarks

1. Applicant is grateful to the Examiner for indicating that Applicant's previous arguments were persuasive.
2. Applicant notes that the Examiner now rejects claims 21 to 35 under U.S.C. 103(a) as being unpatentable over Knightly et al (US6801501) in view of Krishnamurthy et al (US2001/0025310). The Examiner will be aware that in *ex parte* examination of patent applications, the Patent and Trademark Office bears the burden of establishing a *prima facie* case of obviousness. MPEP § 2142; *In re Fritch*, 972 F.2d 1260, 1262, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Patent and Trademark Office. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984). Only when a *prima facie* case of obviousness is established does the burden shift to the applicant to produce evidence of nonobviousness. MPEP § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). If the Patent and Trademark Office does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (Fed. Cir. 1985). A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there

must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. MPEP § 2142.

3. The Examiner accepts that Knightly does not disclose determining from mean bandwidth and bandwidth variance measurements of an aggregated traffic flow separate respective prices for bandwidth and bandwidth variance. However, the Examiner contends that Krishnamurthy does disclose the foregoing feature of determining from mean bandwidth and variance measurements of an aggregated traffic flow separate respective prices for bandwidth and variance and that it would have been obvious to one skilled in the art to have incorporated Krishnamurthy's teachings of pricing-based quality of service with the teachings of Knightly thus rendering the present invention as defined by at least claim 21 obvious. Applicant respectfully disagrees for the following reasons.

4. Any traffic flow where the transmission bandwidth varies with time can be characterized by a mean bandwidth measurement and a bandwidth variance measurement. This is not unique to the present invention. What is unique to the present invention is the derivation from the mean bandwidth and bandwidth variance measurements performed on the aggregated traffic flow of separate respective prices for bandwidth and variance where these separate prices are each applied to a traffic flow to be admitted to the aggregated traffic flow by way of controlling admission of the traffic flow to a network resource. One advantage provided by the present invention is that there is no need for the traffic flow source to determine a Quality of Service (QoS) scheme when requesting admission of the traffic flow to the network resource since the application of the separate prices for bandwidth and bandwidth variance are self-regulating. Either they produce a price that is acceptable to the traffic flow source or they do not. For example, where the

aggregated traffic flow has a low mean bandwidth measurement and a high bandwidth variance measurement and a traffic flow to be admitted has high bandwidth requirement but a low variance, the price for that traffic flow to be admitted will be relatively low despite its high bandwidth requirement since, in this example, variance rather than bandwidth will be charged at high rates. Thus, it can be seen that the present invention provides a sophisticated admission control mechanism through the use of the two separate pricing rates for bandwidth and variance. Also, there is no requirement on the traffic flow source of the present invention to regulate, i.e. police the traffic flow at the edge of the network resource to stay within a requested QoS scheme.

5. The issues of mean bandwidth and bandwidth variance are also relevant to Knightly and Krishnamurthy in the manner that they would be to any traffic admission system. Knightly does not disclose pricing, although it does disclose controlling admission of a traffic flow based on an empirical traffic envelope of the aggregated traffic flow. Krishnamurthy on the other hand does not teach deriving separate prices for bandwidth and bandwidth variance nor of applying these separate prices to a traffic flow to be admitted to an aggregated traffic flow. Applicant observes from paragraphs 0130 through to 0141 of Krishnamurthy that the various pricing schemes disclosed in paragraphs 0131, 0133, 0135, 0137, 0139 and 0141 are consistent with each other in that they disclose the pricing of bandwidth only. There is no separate price applied for bandwidth variance. The price for bandwidth used in the various pricing schemes may be a fixed rate or a rate that varies with time. In either case, it is still a single pricing mechanism. Also, nowhere in any of the schemes taught by Knightly is there any suggestion of applying a separate price for bandwidth variance. The various pricing schemes comprise a combination of a fixed or variable rate price for bandwidth and a variable or fixed QoS scheme. In other words, the pricing scheme disclosed by Krishnamurthy employs only the pricing of bandwidth either as a fixed or variable rate as a means of charging for bandwidth usage etc. It also requires a traffic flow source to specify a required QoS and, if necessary, to police,

i.e. adapt, the traffic flow to the QoS scheme. By employing only pricing of bandwidth, Krishnamurthy cannot provide a system where, using the example discussed above, a high bandwidth, low variance traffic flow can be accorded a lower price for admission than a low bandwidth, high variance traffic flow since it only employs a single pricing mechanism. This remains true even if it is contended that the single pricing mechanism of Knightly implicitly involves variance.

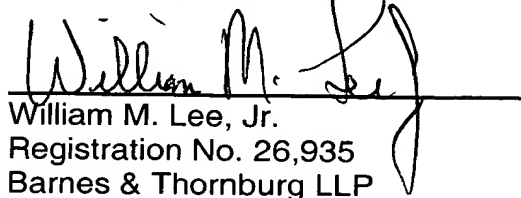
6. It can be seen from the foregoing that the combination of Knightly and Krishnamurthy do not disclose or suggest all of the limitations of claim 21. Further, even if one skilled in the art were to combine the teachings of Knightly and Krishnamurthy, one would arrive at an arrangement in which traffic flow admission to an aggregate flow is controlled based on an empirical traffic envelope of the aggregated traffic flow and priced according to a single bandwidth price rate, either variable or fixed. Thus, the combination of Knightly and Krishnamurthy would not result in the arrangement of the present invention.

7. The present invention makes a useful contribution to the art in that it provides a means of managing the admissions of traffic flows to a network resource in accordance with two price determinations relating to the resource, wherein the price determinations can be separately applied to respective corresponding characteristics (measurements) of a traffic flow to be admitted to the resource. This provides an admission control arrangement that is much more sophisticated and versatile than those of the prior art references of record, whether taken singly or in any combination.

8. In view of the foregoing, it is submitted that the claims presented herewith are in condition for allowance.

July 7, 2006

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William M. Lee, Jr.", is written over a horizontal line.

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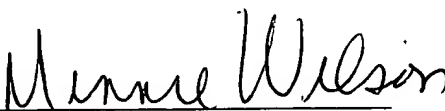


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on July 7, 2006



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